



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: WY1741

Title: Hydrologic Impacts of Improved Irrigation Efficiencies and Land Use Changes

Focus Categories: Hydrology, Irrigation

Keywords: Hydrograph analysis, Return flow

Start Date: 03/01/2001

End Date: 02/28/2002

Federal Funds: \$5,378

Non-Federal Matching Funds: \$16,230

Congressional District: 1

Principal Investigators:

Drew Johnson

Assistant Professor, The University of Wyoming

Larry Pochop

Professor, The University of Wyoming

Bruce Brinkman

Assistant Professor, The University of Wyoming

John Barnes

Consultant, The University of Wyoming

Abstract

Stream flows that originate in the mountainous areas of Wyoming are receiving increased interest in relation to allocation of water rights. The primary objective of this study is to examine hydrologic impacts, including changes in instream flows, resulting from changes in irrigation practices and land use. The study area is the Salt River drainage basin (Star Valley). The methodology used incorporates comparing flows in the Greys and Salt Rivers. The Greys River, due to lack of agriculture in its drainage area, can be used as a control and flows in the Greys River can be compared to flows in the Salt River where changes in land use and irrigation have occurred. Comparing flows in the Greys and Salt Rivers allows effects due to changes in land use and irrigation practices to be quantified.

This is a continuing project. With previous funding, instream flow savings due to changes in irrigation practices have been quantified, changes in water quality have been investigated and information relating changes in irrigated acreages within the study area has been obtained. Continued funding is requested to complete on going and future work which includes characterizing changes in ground water levels and quality, relating observed instream flow savings to estimated savings from reduced evapotranspiration losses and report generation for proper dissemination of findings from this study.